

LISTING OF THE CLAIMS

1. (Currently Amended) An automatic exposure control and automatic gain control circuit, comprising:
 - a translation module for transforming an input data stream into x-y coordinates corresponding to said input data stream, wherein the x-y coordinates define a plurality of tiles corresponding to respective portions of a digital image;
 - global control registers for defining tiles of an image and assigning storing the x-y coordinates and weights [[to]] associated with said tiles; and
 - a module for adjusting the x-y coordinates such that the tiles are concentrated in a region of interest in the digital image and for generating and using a histogram based on said x-y coordinates, said tiles, and said assigned tile weights, said module using said histogram to provide an adjustment to analog exposure and gain control registers.
2. (Cancelled).
3. (Cancelled).
4. (Original) The automatic exposure control and automatic gain control circuit according to claim 1, wherein said input data stream comprises digital signal values from an analog-to-digital converter of a sensor array.
5. (Original) The automatic exposure control and automatic gain control circuit according to claim 1, further comprising a video input module for receiving said input data stream and forwarding said input data stream to said translation module.

6. (Original) The automatic exposure control and automatic gain control circuit according to claim 1, wherein said module for generating and using said histogram further comprises:

a histogram generator receiving said input data stream, said x-y coordinates, said tiles, and said assigned tile weight; and

a control module providing said adjustment to said analog exposure control and analog gain control registers, said control module using said histogram created by said histogram generator, said tiles and said assigned tile weights to calculate said adjustment.

Claims 7-23. (Cancelled)

24. (New) A method for capturing a digital image of a scene, the method comprising:

sensing incident light to generate digital pixel values that collectively form the digital image of the scene;

defining a plurality of tiles corresponding to portions of the digital image;

adjusting dimensions of at least some of the tiles based on a region of interest in the scene;

assigning a weight to each tile;

selecting a sample of digital pixel values associated with each tile based on the weight assigned to the tile; and

adjusting an exposure setting based on the sample of digital pixel values.

25. (New) The method of claim 24, wherein adjusting the tiles comprises resizing at least some of the tiles to increase the number of tiles in the region of interest.

26. (New) The method of claim 25, wherein the resizing comprises making tiles smaller inside the region of interest and making tiles larger outside the region of interest.

27. (New) The method of claim 25, wherein the number of tiles after the resizing step equals the number of tiles before the resizing step.
28. (New) The method of claim 24, wherein the selecting step comprises:
 - selecting a set of digital pixel values associated with each tile without regard to the weight assigned to the tile; and
 - selecting a subset of the set of digital pixel values associated with each tile based on the weight assigned to the tile.
29. (New) The method of claim 28, wherein the selecting a set of digital pixel values comprises selecting every n th digital pixel value.
30. (New) The method of claim 29, wherein $n = 16$.
31. (New) The method of claim 28, wherein the selecting a subset of the set of digital pixel values comprises selecting a number of digital pixel values proportional to the weight assigned to a respective tile.
32. (New) The method of claim 31, wherein the selecting a subset of the set of digital pixel values comprises selecting a number of digital pixel values equal to the weight assigned to a respective tile.
33. (New) The method of claim 24, further comprising:
 - if the exposure setting is at a limit, adjusting an analog gain setting.

34. (New) A processor system, comprising:
 - an input device configured to receive pixel values; and
 - a processor configured to:
 - receive pixel values from the input device, wherein the pixel values correspond to an image of a scene;
 - adjust boundaries of tiles based on an area of interest within the image, wherein each tile defines set of pixel values within a portion of the image;
 - select a subset of pixel values within each tile based on a weight assigned to the tile;
 - generate a histogram based on the selected subset of pixel values; and
 - determine an adjusted image parameter based on the histogram.
35. (New) The processor system of claim 34, wherein each tile defines a rectangular area of the image.
36. (New) The processor system of claim 34, wherein the processor is further configured to adjust boundaries of the tiles by changing (x, y) coordinates defining corners of the tiles.
37. (New) The processor system of claim 36, wherein each (x, y) coordinate corresponds to a pixel location within the image.
38. (New) The processor system of claim 34, wherein the adjusted image parameter is an exposure parameter.
39. (New) The processor system of claim 34, wherein the adjusted image parameter is a gain parameter.

40. (New) The processor system of claim 38, wherein the processor is further configured to determine the exposure parameter by:

if at least a threshold number of the selected pixel values exceed a brightness threshold:

determine that the exposure parameter should be reduced; or

if at least a threshold number of the selected pixel values are below a darkness threshold:

determine that the exposure parameter should be increased.

41. (New) The processor system of claim 40, wherein the processor is further configured to determine a gain parameter by:

if at least a threshold number of the selected pixel values exceed a brightness threshold and the exposure parameter is at a minimum:

determine that the gain parameter should be reduced; or

if at least a threshold number of the selected pixel values are below a darkness threshold and the exposure parameter is at a maximum:

determine that the gain parameter should be increased.

42. (New) The processor system of claim 39, wherein the processor is further configured to determine the gain parameter by:

if at least a threshold number of the selected pixel values exceed a brightness threshold:

determine that the gain parameter should be reduced; or

if at least a threshold number of the selected pixel values are below a darkness threshold:

determine that the gain parameter should be increased.